

REMARKS

This responds to the Office Action mailed on May 8, 2006.

By this amendment, claims 40, 44-49, 52, 56, 57, 60-64 and 66 are amended. No claims were added. Claim 58 was canceled. As a result, claims 40-57 and 59-66 remain pending in this application. Reconsideration of this application in view of the above amendments and the following remarks is requested.

§112 Rejection of the Claims

Claims 44-47 and 49-67 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

In this response, claims 44-47, 61-64 and 66 have been amended to replace the term “sheet” with the term –substrate--. The term substrate is introduced in claim 40. As a result, each of the claims 44-47, 61-64 and 66 now use a term with proper antecedent basis.

Claim 49 was amended to now recite “...the conductive material within at least some of the plurality of indentations is separated from the conductive material within some of the other indentations by insulative material.” This now clears up the confusion noted by the Examiner. As a result, claims 44-47 and 49-67 now overcome the rejection under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

§102 Rejection of the Claims

A. Rejection: Claims 40-47, 49-55, 58, 61-65, and 67 were rejected under 35 USC § 102(b) as being anticipated by Carey (U.S. 5,173,442).

B. Response: A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. M.P.E.P. § 2131. To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. PPG Industries, Inc. V. Guardian Industries Corp., 75 F.3d 1558, 37 USPQ2d 1618 (Fed. Cir. 1996). The identical

invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim 40, as amended, recites "...an indenting roller having a pattern surface adapted to form a plurality of indentations on a major surface of the substrate, the indentations for receiving conductive material..." The Cary reference fails to disclose an indenting roller. The Cary reference does not disclose a roller at all. Rather, Cary discloses a heated stamp for stamping indentations into a substrate formed of heated material. Stamping processes require a large planar structure to be brought down into contact with a substrate. A large force must be imparted on the stamp to indent the substrate. It is also important that movement in the plane of the stamp be closely controlled to assure an accurate stamping. A roller requires much less force since only a small portion of the surface used to indent the substrate is in contact with the substrate. The roller must also be carefully controlled to prevent movement in the plane of the substrate. This assures accurate formation of indentations in the substrate. Use of a roller is also much more efficient in terms of manufacture since substrate material can be fed continuously to a roller. A stamp requires that a portion of the substrate about equal in area must be placed under stamp after each up and down cycle of the stamp. In short, claim 40 now overcomes the Examiner's rejection under 35 USC § 102(b) as being anticipated by Carey (U.S. 5,173,442) since the reference fails to teach each and every element as set forth in the claim.

Claims 41-47, 49-55, 58, 61-65, and 67 each depend from claim 40 and include its limitations. As a result, claims 41-47, 49-55, 58, 61-65, and 67 overcome the Examiner's rejection under 35 USC § 102(b) as being anticipated by Carey (U.S. 5,173,442).

§103 Rejection of the Claims

A. Rejection: Claims 59-60 were rejected under 35 USC § 103(a) as being unpatentable over Carey.

B. Response: In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable

expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claims 59 and 60 depend indirectly from claim 40 and, therefore, include the limitations of claim 40 by their dependency. The Cary reference fails to teach or suggest an indenting roller. The Cary reference does not disclose a roller at all. Rather, Cary discloses a heated stamp for stamping indentations into a substrate formed of heated material. A roller differs from a stamp as discussed above. As a result, the Examiner can no longer a proper *prima facie* case of obviousness since the prior art reference (Cary) fails to teach or suggest all the claim limitations. Accordingly, the rejection of claims 59 and 60 under 35 USC § 103(a) as being unpatentable over Carey is now overcome.

The Examiner rejected claims 59 and 60 under 35 USC § 103(a) based solely on the Cary reference. The rejection of claims 59 and 60 based on a single reference is improper. For the reasons set forth above, Applicant respectfully traverses the single reference rejection under 35 U.S.C. § 103(b) since not all of the recited elements of the claims are found in the Cary reference. Since all the elements of the claim are not found in the reference, Applicant assumes that the Examiner is taking official notice of the missing elements. Applicant respectfully objects to the taking of official notice with a single reference obviousness rejection and, pursuant to M.P.E.P. § 2144.03, Applicant respectfully traverses the assertion of Official Notice and requests that the Examiner cite references in support of his position.

C. Rejection: Claims 48, 56-57, and 66 were rejected under 35 USC § 103(a) as being unpatentable over Carey in view of Schilson (U.S. 6,026,563).

D. Response: In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable

expectation of success. Finally, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claims 48, 56-57, and 66 depend either directly or indirectly from claim 40 and, therefore, include the limitations of claim 40 by their dependency. Claims 48, 56-57, and 66 overcome the Examiner's rejection for several reasons. First of all, one of ordinary skill in the art would not combine the Cary reference with the Schilson reference. Cary teaches the use of a stamp. The stamp must be carefully controlled in the plane of the stamp and the substrate to assure the proper formation and location of the indentations. The Schilson reference specifically teaches moving or vibrating the rollers in the plane of the substrate. According to Schilson:

In a preferred embodiment, the full wave horn 60 provides for ultrasonic bonding via a shear mode or in the horizontal direction of arrow 67. The use of the full wave horn having a shear mode provides for continuous welding to form a continuous seam 50 of the flat cable 10. As is known in the ultrasonic bonding art, the rotary horn 60 is attached to a converter and a booster which generates a voltage which creates a wave which passes through the rotary horn 60 and causes the rotary horn 60 to oscillate or vibrate in the direction of arrow 67. In a preferred embodiment, the horn will vibrate at approximately 20 kHz. (See column 5, lines 34-45 of Schilson—emphasis added)

Movement in the horizontal direction would simply destroy the Cary reference since movement in this direction would destroy the quality of the resulting stamping.

Even in one of ordinary skill in the art were to combine Cary and Schilson, the combination still fails to teach or suggest an indenting roller of claim 40. Claim 40 recites "...an indenting roller having a pattern surface adapted to form a plurality of indentations on a major surface of the substrate, the indentations for receiving conductive material..." The Cary reference does not disclose a roller at all. The Schilson reference also fails to teach a roller. Element 70 is a rotary anvil and element 60 is a rotary horn that are used to ultrasonically bond two substrates together to form a flat electrical cable. Therefore, the combination of Cary and Schilson fails to teach a roller.

Even if one can successfully argue that one of the rotary anvil or the rotary horn is a roller, the combination still falls short of the invention as claimed. The indentations formed in Schilson are not for receiving conductive material as recited by claim 40. The conductors are placed between the substrates. In other words, the conductors are bonded within the cable (See column 6, lines 12-13 of Schilson). Therefore any indentations that happen to be formed do not receive conductive material. Rather, Cary discloses a heated stamp for stamping indentations into a substrate formed of heated material. A roller differs from a stamp as discussed above. The Examiner then cites Schilson for its disclosure of a first and second roller apparatus. Simply put, the combination of Cary and Schilson still falls short of the invention as claimed. As a result, the rejection of claims 48, 56-57, and 66 under 35 USC § 103(a) as being unpatentable over Carey in view of Schilson (U.S. 6,026,563) is now overcome.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6977) to facilitate prosecution of this application.

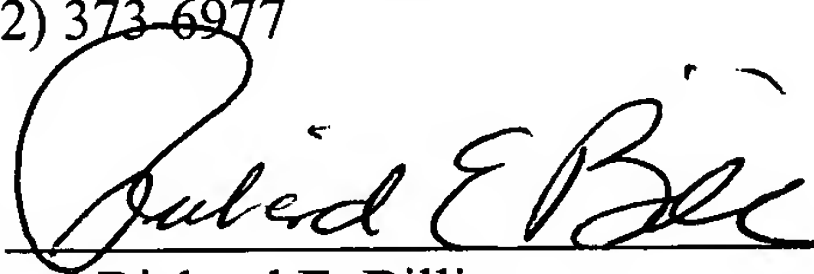
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Respectfully submitted,

DAVID P MCCONVILLE ET AL.

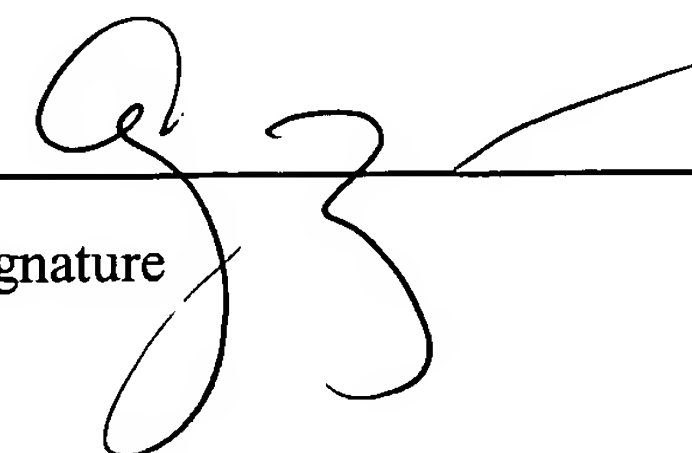
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